

THE RELATIONSHIP BETWEEN STRESS AND WEIGHT-CONTROL BEHAVIOR IN AFRICAN-AMERICAN WOMEN

Jacqueline A. Walcott-McQuigg, PhD, RN
Chicago, Illinois

Obesity is a problem for African-American women across all socioeconomic strata. Age-adjusted prevalence of overweight is 48.5% among African-American women compared with 21% among white women. An exploratory field was designed to examine selected psychosocial factors that influence the weight-control behavior of middle-income African-American women. A triangulation methodology was used in which both qualitative and quantitative data were collected. First, semistructured interviews were held with 36 African-American women between the ages of 25 and 75. Second, a Global Stress Scale was administered to measure perceived stress. Statistical analysis of the data revealed a positive correlation between body weight and stress in that women who were more overweight were experiencing more stress. Ethnographic analysis of the data showed that more than 50% of the women thought that stress negatively affected their weight-control behavior. Additionally, occupational stressors related to racism, sexism, and workload were major stressors for this group of women. Recognition of factors that influence weight-control health practices will enable health professionals to assist African-

American women to manage their weight. (*J Natl Med Assoc.* 1995;87:427-432.)

Key words • African-American women • weight-control behavior • body weight • stress

Obesity is a problem for all groups of women, especially as they grow older.¹ Studies exploring weight-change events have found that race is a predictor, with African-American women gaining more weight than white women² across most socioeconomic and age groups.³⁻⁶

National nutrition and health survey data profile the weight differentials between African-American women and other groups of women,^{3,4,7,8} but few studies examine reasons for the differentials. African-American women are less likely to diet to lose weight^{7,9,10} and less likely to exercise^{6,11} than white women. Additionally, fewer African-American women than white women perceive themselves as overweight,^{7,12,13} do not feel it is necessary to be slim to be attractive,¹⁴⁻¹⁶ and due to certain cultural and lifestyle factors, do not have the same concerns about diet and weight management.^{4,15-17}

Although researchers have shown a significant relationship between positive health practices, higher socioeconomic status, and improved health,¹⁸⁻²⁰ African-American women in higher socioeconomic groups appear to have similar weight-gain patterns as those in lower socioeconomic groups. The purpose of this study was to seek, directly from middle-income African-American women, factors that influence their weight-control behavior.

From the Department of Public Health Nursing, University of Illinois at Chicago, Chicago, Illinois. Requests for reprints should be addressed to Dr Jacqueline A. Walcott-McQuigg, Dept of Public Health Nursing, University of Illinois at Chicago, Chicago, IL 60612.

TABLE 1. BODY WEIGHT DISTRIBUTION

Variable	Weight Range (kg)	Frequency (%)
Underweight	0.5-5.5	7 (19)
1% to 10% overweight	0.5-6.4	12 (33)
11% to 19% overweight	8.2-14.5	4 (11)
>20% overweight	18.2-43.6	13 (36)

METHODOLOGY

The study population consisted of a purposive sample of middle-income African-American women primarily from three traditional African-American sororities. Most of the women had joined the sororities while in college and continued to meet after graduation for social and community-activism purposes.

Both qualitative and quantitative data were gathered using a between-methods triangulation approach²¹ that included face-to-face, in-depth, and audiotaped interviews as well as a structured questionnaire. Among the topics included in the interviews were questions about factors that influenced the women's weight-control behavior and perceived stressful events. A Perceived Stress Scale²² and the Tennessee Self-Concept Scale²³ were included in the questionnaire. Internal consistency reliability using coefficient alpha was 0.80 for the Perceived Stress Scale and 0.82 for the Tennessee Self-Concept Scale. Additional measures included weight, height, and a wrist measure to calculate body frame and weight-range categories based on the Metropolitan Life Tables.²⁴ The interviews ranged in length from 1 to 4 hours. An extra 30 minutes was spent completing the questionnaire. Data were collected over a 7-month period, primarily in women's homes.

Analysis

Each audiotaped interview was transcribed verbatim. A series of topic codes were developed to facilitate the content analysis of the transcribed data. A code is a word or phrase that best describes an emergent theme identified in a block of text. Constant comparison, the act of moving back and forth among interviews to identify patterns,²⁵ was used. The Ethnograph (Version 3.0) computer program²⁶ was used to organize the transcribed data set into common categories. To establish the validity of the categories, an expert in the field of women's health and an expert in weight management applied the categories to a randomly selected, transcribed interview. Interrater reliability for the categories ranged between 90% and 95%. An

TABLE 2. DISTRIBUTION OF WEIGHT-CONTROL BEHAVIOR

Variable	Frequency (%)
Weight-control behavior	
Diet control	30 (83.3)
Exercise	20 (55.6)
Weight management	16 (44.5)
Combination of behaviors	
None	4 (11.0)
One	10 (28.0)
Two	9 (25.0)
Three	13 (36.0)

acceptable level of interrater reliability is 0.80.²⁷ The association between stress, pounds overweight, weight-control behavior, and self-concept were determined by Pearson's correlation coefficients.

RESULTS

Characteristics of the Sample

The age of the 36 women ranged between 25 and 75 years (average: 40 years). Ninety-three percent of the women had earned a baccalaureate degree or higher. Sixty-one percent of the women earned at least \$30 000. Most of the women were employed full time (83%). All the women either held or had held professional, middle-management, or higher-level-management positions. Forty-four percent were married and living with their spouse (44%). Fifty-three percent had at least one child. Most of the women belonged to at least one professional and one personal organization; several belonged to five or more. This high level of involvement demonstrated a commitment to their profession as well as to the community.

Body Weight

An interesting finding in this study was that of the women's weight distribution (Table 1); none of the weights were within the 1983 Metropolitan Life Tables' normal weight categories. Seven of the women were underweight, and 29 exceeded the chart weight by 0.5 kg to 43.6 kg. Based on this investigator's visual evaluation, the women who were underweight and the women who were up to 6.4 kg over their chart weight were normal in body size. This information may indicate the need to examine the relevance of weight tables for defining normal weight parameters for African-American women.

The 13 women in the 20%-and-over category were obese. Obesity is defined as body weight >20% of optimal levels and body mass index >27.3 in women.²⁸

TABLE 3. PERCEIVED BARRIERS TO WEIGHT-CONTROL BEHAVIOR

Variable	Response Frequency (%)
Time constraints	28 (78)
Stress	20 (56)
Lack of self-control	18 (50)
Lack of social support	18 (50)
Structural issues	18 (50)
Lack of motivation/commitment	15 (42)
Social/professional activities	10 (28)

Body weight >20% above optimum is associated with morbidity and mortality,^{29,30} especially among African Americans.³¹ Body mass index ranged between 19 and 40 (average: 27).

Weight-Control Behavior

Weight-control behavior is defined as diet control, weight management, and exercise (Table 2). Ethnographic analysis of responses to specific questions regarding weight-control behavior revealed that diet control was conceptually different than weight management for this group of women. The majority were involved in diet-control measures to reduce the intake of fat, cholesterol, sodium, and sugar, and to increase fiber, vitamins, and other nutrients in their diets to "keep healthy."

Fifty-six percent of the women were engaged in a regular exercise program at least three times a week. The women involved in aggressive weight-management measures, such as formal or self-imposed diets to reduce or maintain their weight, were primarily engaged in the behavior to "be physically attractive" and to "look good in their clothes." Health was seldom identified as a motivator to lose weight.

The women in the higher overweight groups found it easier to exercise than to diet. The four women not involved in any of the behaviors were overweight by 20% or more.

Barriers to Weight-Control Behavior

The major barrier involved time factors (Table 3). Time constraints were related to family responsibilities and work requirements that resulted in work overload. The family responsibilities included caring for children and elderly relatives, and for some, caring for both children and relatives. More than 50% of the women identified themselves as stress eaters, in that eating behavior increased when they were under stress.

TABLE 4. MAJOR LIFE STRESSORS

Variable	Frequency (%)
Family illness/death	36 (100)
Work	23 (64)
Children, child-care responsibilities	11 (31)
Finance/educational pursuits	9 (25)
Marital, familial, personal relationships	6 (17)

Frequently, the stressors interfered with their ability to maintain a weight-management or exercise program.

Structural issues were related to transportation, location, hours of health-club facilities, and safety. Lack of motivation/commitment, lack of self-control, and lack of social support were also barriers for some of the women. Social support was important to the initiation and maintenance of weight-control behavior. The women ended the behavior when their partners were no longer able to participate. Because of the types of food served and expectations of eating behavior at some of the social and professional activities, many women were unable to adhere to weight-control behavior. Time constraints associated with involvement in these functions interfered with preparation of low-calorie foods and exercise activity.

Stress

Stress was explored with the perceived stress scale and interview questions. The questions asked the women to identify major life stressors and occupational stressors.

Major Life Stressors. Family illness/death and work were the two most identified life stressors (Table 4). It is not surprising that the women were experiencing stress because of family illness and death. The women identified one or more of the disease processes that cause excess rates of disease and death in African Americans (Table 5). When we, as health professionals, probe for family history of disease, we are usually looking for risk factors in the individual. The effects of the stressor on family members' health habits are seldom considered.

The women described other life stressors such as the difficulty of being an African-American woman in society, safety issues, and lack of career options. They felt there were few positive media images and that there was a general lack of attention to issues specific to African-American women. Several women expressed concern for the future of the

TABLE 5. FAMILY HISTORY OF DISEASE

Disease	Frequency (%)
Hypertension	25 (69)
Diabetes	22 (61)
Cancer	18 (50)
Heart disease	16 (44)
Stroke	15 (42)

African-American population. This concern was further evidenced in the women's commitment to organizations that were designed to assist other African Americans. Usually, the organization's activities addressed exclusionary issues important to African-American communities, such as education and circumstances related to poverty.

Occupational Stress. Workload and managing others were very stressful for the women (Table 6). On-the-job politics also was a stressor. The women observed coworkers obtaining advanced positions based on favoritism rather than merit. Racism was experienced in the lack of respect shown by whites for their authority, in being passed over for promotions, and in training whites younger and less experienced for supervisory positions. Sexist incidents occurred when the women were complimented on their clothing rather than on their business capabilities. Additionally, male coworkers initiated conversations about personal information, such as sexual practices.

Other identified occupational stressors, such as being the only African American in the department, the only African American in management, or the only woman in a department or company, produced feelings of isolation. Many middle-income women work in jobs that provide services for low-income or ethnic minorities. These women's comments supported information in the literature that suggests facilities in the inner city do not receive equal resources. The physical environment was unpleasant due to deteriorating structures, insect and rodent infestation, and lack of appropriate security measures.

A major job stress for educators was the plight of the children in the school system. These women felt the children's future success was jeopardized by the lack of economic resources, the lack of environmental and parental support, and the attitudes of the children about the importance of education. The public's view of educators is shaped by the media. Frequently, negative televised and newspaper reports about salary and benefit negotiations present a biased view of other problems that confront ethnic-minority educators.

TABLE 6. OCCUPATIONAL STRESSORS

Stressor	Frequency (%)
Workload	19 (53)
Managing others	11 (31)
Job politics	9 (25)
Racism/sexism	9 (25)

Statistical Analysis

Pearson's correlations coefficients were conducted to determine the relationship among diet control, weight management, and exercise behavior. The data indicated that women who were managing their weight were more likely to do so using a combination of diet control and exercise. Based on the strength of the correlations, the three variables were combined into a single interval level variable—weight-control behavior. The analysis of the relationship between weight-control behavior and the quantitative measures revealed that women who were experiencing higher levels of stress had a lower physical self-concept ($r = -.60$; $P < .01$), were more overweight ($r = .33$; $P < .05$), and were engaged in less weight-control behavior ($r = -.30$; $P < .10$).

DISCUSSION

The need to explore psychosocial factors that influence the greater propensity of African-American women to develop obesity³²⁻³⁴ has been widely recognized. In this study, the relationship between weight-control behavior and stress was explored. The women's higher level of involvement in diet control compared with weight management or exercise behavior is consistent with other findings that show that African Americans are more likely to participate in diet control to reduce hypertension³⁵ and the susceptibility to diabetes and heart disease.

This study revealed that several psychosocial factors identified in other studies influence weight-control behavior in this group of African-American women. Although the women were interested in losing and maintaining weight, various factors such as competing responsibilities for work, family, community, stress, lack of social support, and self-control/motivation issues interfered with their ability to initiate and maintain weight-control behavior. Social support, motivation,^{36,37} and self-control leading to self-efficacy³⁸ are important factors in the initiation and maintenance of weight-control behavior. In this study, the women were able to recognize how these factors influenced their weight-control behavior.

Mui³⁹ found that African-American females experi-

enced more caregiver strain than white females. The women in this study were caregivers and working women. They demonstrated a professional and personal commitment to their work and the African-American community. Additionally, stressful events associated with the activities resulted in stressful eating behavior for more than 50% of the women. Emotions such as stress, anger, and depression have been linked to eating behavior, weight gain, and obesity^{40,41} in the general population, and to cardiovascular disease risks in African Americans.¹⁷

It is not surprising that racism, sexism, lack of respect, and few positive media images contribute to stress in African-American women. Historical and recent studies of the progress of African Americans show that African Americans have lost jobs over the last 2 years and are more likely to experience discrimination in workplace hiring, promotion, and retention, a denial of access to resources and authority, racial stereotyping, and a lack of equal occupational opportunities.⁴² The influx of African-American women into high-status, high-paying jobs in the 1980s⁴³ may account for some of the problems. In addition, African-American women are more likely than white women to report lower levels of coworker support, heavier workloads, and more trouble with their boss and subordinates.⁴⁴

Several studies have found that women are less likely to exercise when exercise activities compete with family responsibilities.⁴⁵ In this study, the convergence of the quantitative and qualitative data support those findings. The women's reports of their inability to engage in weight-control behavior because of stress and other barriers also is supported by the results of the statistical analysis. Although the relationship between stress and weight-control behavior only approached significance, this finding has implications for future research. Exploring the factors in a larger sample of African-American women may reveal that stress has a significant effect on weight-control behavior.

CONCLUSION

Middle-income African-American women are exposed to many personal, community, and occupational factors that are stress producing. The dual burden of racism and sexism creates additional problems for them. These stress factors have the potential to interfere with their ability to manage their weight. The findings of this study have implications for nurses and other health professionals who assist women in managing their weight. Programs to assist African-American women in controlling their weight should address weight-control behavior in the

context of broader health and social issues⁴⁶ by including strategies to overcome self-identified barriers and both occupational and life stress.

Literature Cited

1. Wing RR. Obesity and weight gain during adulthood: a health problem for United States women. *Women's Health Issues*. 1992;2:114-122.
2. Williamson DF. Descriptive epidemiology of body weight and weight change in US adults. *Ann Intern Med*. 1993;119(pt 2):646-649.
3. Kuczmarski RS, Flegal KM, Campbell SM, Johnson CL. Increasing prevalence of overweight among US adults: the national health and nutrition examination survey 1960 to 1991. *JAMA*. 1994;272:205-211.
4. Kumanyika S. Obesity in black women. *Epidemiol Rev*. 1987;9:31-50.
5. Sobol J, Stunkard AJ. Socioeconomic status and obesity: a review of the literature. *Psychol Bull*. 1989;105:260-275.
6. Burke G, Savage P, Manolio T, Sprafka J, Wagenknecht L, Sidney S, et al. Correlates of obesity in young black women: the CARDIA study. *Am J Public Health*. 1992;82:1621-1625.
7. Dawson DA. Ethnic differences in female overweight data from the 1985 national health interview survey. *Am J Public Health*. 1988;78:1326-1329.
8. United States Public Health Service. *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*. Washington, DC: US Government Printing Office. US Dept of Health and Human Services publication 91-50213. 1991.
9. Kahn HS, Williamson DF. Is race associated with weight change in US adults after adjustment for income, education, and marital factors? *Am J Clin Nutr*. 1991;53(suppl 6):1566S-1570S.
10. Williams DF, Serdula MK, Anda RF, Levy A, Byers T. Weight loss attempts in adults: goals, duration, and rate of weight loss. *Am J Public Health*. 1992;82:1251-1257.
11. Folsom AR, Cook TC, Sprafka JM, Burke GL, Norsted SW, Jacobs DR. Differences in leisure-time physical activity levels between blacks and whites in population-based samples: the Minnesota Heart Survey. *J Behav Med*. 1991;14:1-9.
12. Rand SW, Kulda JM. The epidemiology of obesity and self-defined weight problem in the general population: gender, race, age, and social class. *Journal of Eating Disorders*. 1990;9:329-343.
13. Serdula MK, Collins ME, Williamson DF, Anda RF, Pamuk E, Byers T. Weight control practices of US adolescents and adults. *Ann Intern Med*. 1993;119(pt 2):667-671.
14. Allan JD. Body size values of black women and white women. *Res Nurs Health*. 1993;16:323-333.
15. Thomas VG, James MD. Body image, dieting tendencies, and sex role traits in urban black women. *Sex Roles*. 1988;18:523-529.
16. Walcott-McQuigg JA. *Self-Presentation and Minority Women: Exploring Psychosocial Factors That Influence Health Practices of African-American Women*. Chicago, Ill: University of Illinois at Chicago; 1992. Dissertation.
17. Kumanyika S, Adams-Campbell L. Obesity, diet, and psychosocial factors contributing to cardiovascular disease in blacks. In: Saunders E, Brest A, eds. *Cardiovascular Disease in*

Blacks: Cardiovascular Clinics. Philadelphia, Pa: FA Davis; 1991:47-73.

18. Berkman L, Breslow L. *Health and Ways of Living: The Alameda County Study*. New York, NY: Oxford University Press; 1983.

19. Leigh P. Direct and indirect effects of education on health. *Soc Sci Med*. 1983;17:227-234.

20. Slater CH, Lorimor RL, Lairson DR. The independent contributions of socioeconomic status and health practices to health status. *Prev Med*. 1985;14:372-378.

21. Denizen NK. *The Research Act*. 3rd ed. New York, NY: McGraw-Hill; 1989.

22. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav*. 1983;24:385-396.

23. Roid GH, Fitts WH. *Tennessee Self-Concept Scale: Revised Manual*. Los Angeles, Calif: Western Psychological Services; 1989.

24. Metropolitan Life Foundation. *Height and Weight Tables*. New York, NY: Metropolitan Life Insurance Co; 1983.

25. Lincoln YS, Guba EG. *Naturalistic Inquiry*. Beverly Hills, Calif: Sage; 1985.

26. Seidel JV, Kjolseth R, Seymour E. *The Ethnograph: A User's Guide, Version 3.0*. Corvallis, Oregon. Qualis Research Associates; 1988.

27. Miles M, Huberman A. *Qualitative Data Analysis: An Expanded Sourcebook*. Beverly Hills, Calif: Sage Publications; 1984.

28. Ernst ND, Harlan WR. Obesity and cardiovascular disease in minority populations: executive summary. Conference highlights, conclusions, and recommendations. *Am J Clin Nutr*. 1991;53(suppl 6):1507S-1511S.

29. Pi-Sunyer F. Medical hazards of obesity. *Ann Intern Med*. 1993;119(7 pt 2):655-660.

30. Sjostrom L. Impacts of body weight, body composition, and adipose tissue distribution on morbidity and mortality. In: Stunkard AJ, Wadden TA, eds. *Obesity: Theory and Therapy*, 2nd ed. New York, NY: Raven Press; 1993:13-40.

31. Heckler M. *Report of the Secretary's Task Force on Black and Minority Health, I: Executive Summary*. US Department of Health and Human Services, Public Health Service. Washington, DC: US Government Printing Office, 1985.

32. Croft JB, Strogatz DS, James SA, Keenan NL, Ammerman AS, Malarcher AM, et al. Socioeconomic and behavioral correlates of body mass index in black adults: the Pitt County study. *Am J Public Health*. 1992;82:821-826.

33. Kumanyika S. Special issues regarding obesity in minority populations. *Ann Intern Med*. 1993;119:650-654.

34. The National Heart, Lung, and Blood Institute Growth and Health Study Research Group. Obesity and cardiovascular disease risk factors in black and white girls: the NHLBI growth and health study. *Am J Public Health*. 1992;82:1613-1620.

35. Anda RF, Remington PL, Williamson DF, Binkin NJ. Dietary and weight control practices among persons with hypertension: findings from the 1986 behavioral risk factor surveys. *J Am Diet Assoc*. 1989;89:1265-1268.

36. Sallis JF, Melbourne HF, Hofsetter CR. Predictors of adoption and maintenance of vigorous physical activity in men and women. *Prev Med*. 1992;21:217-251.

37. Prochaska JO, Norcross JC, Fowler JL, Follick MJ, Abrams DB. Attendance and outcome in a worksite weight control program: processes and stages of change as process and predictor variables. *Addict Behav*. 1992;17:35-45.

38. Sallis JF, Pinski RB, Grossman RM, Patterson TL, Nader PL. The development of self-efficacy scales for health-related diet and exercise behaviors. *Health Education Research: Theory & Practice*. 1988;3:283-292.

39. Mui AC. Caregiver strain among black and white daughter caregivers: a role theory perspective. *Gerontologist*. 1992;32:203-212.

40. Ganley RM. Emotional eating and how it relates to dietary restraint, disinhibition, and perceived hunger. *Int J Eating Disord*. 1988;7:635-647.

41. Ganley RM. Emotion and eating in obesity: a review of the literature. *Int J Eating Disord*. 1989;8:343-361.

42. Cose E. *Rage of the Privileged Class*. New York, New York. Harper Collins Publishers, Inc. 1993.

43. Cope N, Hall H. The health implications for black women in the US: implications for health psychology. *Sage*. 1985;2:20-24.

44. Snapp MB. Occupational stress, social support, and depression among black and white professional-managerial women. *Women Health*. 1992;18:41-79.

45. Henderson K. The meaning of leisure for women: an integrative review of the research. *Journal of Leisure Research*. 1990;22:228-243.

46. Kumanyika SK, Morssink M, Agurs T. Models for dietary and weight change in African-American women: identifying cultural components. *Ethn Dis*. 1992;2:166-175.